

REMARKS

In the Action, claims 1-12 are rejected. In the response, claim 1 is amended. The pending claims in this application are claims 1-12, with claims 1 and 6 being independent.

Claim 1 is amended to recite the water absorption capacity (CRC) of 10-20 g/g as disclosed in page 26, line 7 of the specification. This range is also within the Working Examples of the specification. Accordingly, this amendment is supported by the specification as originally filed.

In view of these amendments and the following comments, reconsideration and allowance are requested.

The Double Patenting Rejection

Claims 1 and 2 are provisionally rejected for obviousness-type double patenting over claims 1, 3 and 4 of co-pending application Serial No. 11/526,525. Although the Action refers to two different serial numbers, the Examiner confirmed in a telephone conference that the rejection is based on Serial No. 11/526,525.

Applicants submit that the obviousness-type double patenting is improper and should be withdrawn. An obviousness-type double patenting rejection is based on two co-pending applications which are commonly owned. The '525 application is assigned to and owned by The Proctor & Gamble Co. and is not commonly owned with the present application. Therefore, the obviousness-type double patenting rejection is improper and cannot be overcome by filing a terminal disclaimer. A terminal disclaimer requires that the two applications be commonly owned.

Furthermore, the '525 application has a U.S. filing date of September 25, 2006 which is its earliest effective date under 35 U.S.C. § 102(e). The effective date of the '525 application is after the U.S. filing date of the present application and after the effective filing date of the

priority application. Therefore, the '525 application is not a reference against the present application under 35 U.S.C. §§ 102(a), (b) or (e).

In view of the above comments, Applicants request the double patenting rejection be withdrawn.

Rejection of Claims 1 and 2 Under 35 U.S.C. § 103(a)

Claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,562,646 to Goldman et al. Goldman et al. is cited for disclosing absorbent members for body fluids.

The rejection appears to be based in part on Goldman et al. disclosing water-absorbent resin particles formed from a water-soluble monomer. The Action appears to suggest that since Goldman et al. discloses the same monomer component, that the resulting polymer and water-absorbent resin particles are inherently the same as the claimed invention and inherently have the same properties. This position is without merit. Water-absorbent resin particles made by different processes do not inherently have the same properties or characteristics even though the polymers are formed by the same monomer components. The Examiner's position would suggest that every water absorbent resin particle formed from an ethylenically unsaturated monomer would inherently be identical regardless of the polymerization process and other processing steps to form the resulting water -absorbent resin particles. Accordingly, Applicants respectfully submit that the position expressed in the Action is incorrect.

Goldman et al. does not disclose or suggest the combination of the claimed properties of the present invention. Furthermore, the specific properties and values recited in claim 1 are not inherent in the resulting polymer disclosed in Goldman et al.

As disclosed on page 28, lines 18 of the present specification, Applicants have discovered that the important features of the invention are the combination of four properties, namely, (1) the absorption rate (FSR) of not less than 0.2 g/g/s, (2) the water absorption capacity (CRC) of 10-20 g/g, (3) the saline flow conductivity (SFC) of not less than $400 \times 10^{-7} \text{ cm}^3 \cdot \text{s/g}$, and (4) the wet porosity of not less than 20%. The specific combination of these parameters would not have been obvious to one skilled in the art in view of Goldman et al. Moreover, one skilled in the art in view of Goldman et al. would not have reasonably expected the combination of these properties to provide the improved characteristics as obtained by the claimed aqueous-liquid-absorbing agent.

Goldman et al. does not disclose or suggest internally crosslinked water -absorbent resin particles obtained by polymerizing a water-soluble ethylenically unsaturated monomer, in combination with the other features of claim 1. Goldman et al. refers generally to a broad general discussion of polymerization methods which can be used to form the hydrogel forming absorbent polymers of the resulting absorbent members.

Goldman et al. also does not disclose the absorption rate of the water absorbing resin particles or the water absorption capacity of the claimed invention. Goldman et al. also does not suggest the combination of the absorption rate, water absorption capacity, saline flow conductivity and wet porosity and the relationship between these values for providing the improved properties of the water absorbing agent.

The Action incorrectly refers to the performance under pressure (PUP) of Goldman et al. as corresponding to the claimed water absorption capacity. Page 4 of the Action refers to the absorption capacity or gel volume which are determined by the performance under pressure (PUP) capacity as disclosed in column 13, lines 23-25 of Goldman et al. As specifically disclosed in the passage in column 13, line 54, to column 14, line 21 of Goldman et al., the performance under pressure measures the ability of a high basis weight zone or

layer of the hydrogel forming polymer to absorb body fluids under usage pressure.

Therefore, the performance under pressure is a measure of the absorbency capacity under a pressure of 0.7 psi (5 kPa). In contrast, the water absorption capacity (CRC) of the invention as disclosed on page 30 of the specification is determined by immersing 0.2 g of the aqueous-liquid-absorbing agent in a bag of non-woven fabric and immersing into a physiological saline solution for 30 minutes. Thus, the method for determining the water absorption capacity is without pressure or load. The water absorption capacity of the claimed invention clearly does not correspond to the performance under pressure of Goldman et al. The values of the performance under pressure disclosed in Goldman et al. are not directly comparable to the water absorption capacity of the present invention. Therefore, Applicants respectfully submit that the statements in the Action that the performance under pressure disclosed in Goldman et al. corresponds to the water absorption capacity of the present invention is incorrect.

In column 7, lines 43-48 of Goldman et al., the performance under pressure is disclosed as being a value of at least 23 g/g under a confining pressure of 0.7 psi (5 kPa). Thus, Goldman et al. specifically considers the higher performance under pressure capacity value to be more desirable. In contrast, as disclosed on page 26, lines 14-20 of the present specification, the absorption capacity under load is not more than 25 g/g and preferably not more than 22 g/g. Thus, the absorption capacity under load of the present invention is preferably below the minimum performance under pressure capacity value required by Goldman et al. The value of the water absorption capacity of the claimed invention is opposite to that of the performance under pressure capacity value of Goldman et al.

Moreover, the methods and conditions for measuring the performance under pressure of Goldman et al. are clearly different from the methods and conditions for measuring the water absorption capacity of the claimed invention. The performance under pressure capacity

value of Goldman et al. is preferably controlled to be a constant value. The water absorption capacity of the polymer is variable and can have a large value or a small value depending on the polymer and the process of producing the polymer. Therefore, the water absorption capacity as in the claimed invention cannot be determined from the performance under pressure capacity value disclosed in Goldman et al. Goldman et al. provides no suggestion to one skilled in the art to provide an aqueous-liquid-absorbing agent from water-absorbent resin particles having the specific combination of properties as recited in claim 1.

Furthermore, in view of the deficiencies of Goldman et al., it would not have been obvious to one skilled in the art to produce water-absorbent resin particles having each of the claimed properties. Even if one were to do so, one skilled in the art would not have a reasonable expectation of the combination of these properties providing the improved characteristics of the aqueous-liquid-absorbing agent. Accordingly, independent claim 1 and dependent claim 2 are not obvious to one skilled in the art in view of Goldman et al.

Rejection of Claims 3 and 4

Claims 3 and 4 are rejected under 35 U.S.C. § 103(a) as being obvious over Goldman et al. in view of U.S. Patent No. 5,275,773 to Irie et al. Irie et al. is cited for disclosing the agglomeration of water-absorbent resin particles.

One skilled in the art would readily recognize that agglomeration of water-absorbent resin particles has a direct effect on the properties and characteristics of the resulting aqueous-liquid-absorbing agent. For the reasons discussed above, Goldman et al. does not suggest an aqueous-liquid-absorbing agent obtained from water-absorbent resin particles having the claimed properties. Irie et al. provides no suggestion to one skilled in the art to agglomerate the particles of Goldman et al. Furthermore, one skilled in the art would not have a reasonable

expectation of success in obtaining the claimed properties by agglomerating the particles of Goldman et al.

It is well known that variations in the processing steps, such as agglomeration of particles, can have a direct effect on the resulting characteristics of the water-absorbent agent. As being disclosed in the Working Examples of Irie et al., when coagulation is caused, there is a tendency that a water absorption rate increases, but flow conductivity decreases. Therefore, even though Irie et al. is combined with Goldman et al., the present invention cannot be expected from these cited references. It would not have been obvious to one skilled in the art to agglomerate the particles of Goldman et al. with an expectation of obtaining the characteristics of the claimed aqueous-liquid-absorbing agent. Therefore, claims 3 and 4 are not obvious over the combination of Goldman et al. and Irie et al.

Rejection of Claim 5

Claim 5 is rejected under 35 U.S.C. § 103(a) as being obvious over Goldman et al. in view of WO 03/043670 to Azad et al. Azad et al. is cited for disclosing a liquid-permeability-enhancing agent.

One skilled in the art would recognize that the addition of a permeability-enhancing agent has an effect on the properties of the resulting water-absorbent agent, although the actual effect would not be readily predictable. As disclosed on page 4, lines 25-27 of the specification, the liquid-permeability-enhancing agent of the present invention can be a polyvalent metal compound, polycationic compound or inorganic fine particle. The passage referred to in the Action of Azad et al. refers to an adhesive coating with a crosslinked surface of a polyamine. Thus, Azad et al. only discloses a surface crosslinked particle and does not disclosed a liquid-permeability-enhancing agent within the meaning of the claimed invention. Therefore, claim 5 would not have been obvious to one skilled in the art in view of Goldman et al. and Azad et al.

Rejection of Claim 6

Claim 6 is rejected under 35 U.S.C. § 103(a) as being obvious over Goldman et al. in view of U.S. Patent No. 6,562,879 to Hatsuda et al., and U.S. Patent No. 6,140,395 to Hatsuda et al. Hatsuda '879 is cited for disclosing the use of a crosslinking agent. Hatsuda '395 is cited for allegedly disclosing the claimed perforation diameter of an extruder outlet.

The combination of the cited patents does not suggest the claimed process for the production of an aqueous-liquid-absorbing agent comprising the steps of preparing an aqueous monomer solution and internal-crosslinking agent in an amount of not less than 0.2 mol %, polymerizing and internally crosslinking the monomer to form a hydrogel, and extruding the hydrogel from a perforated structure having perforation diameters in the range of 0.3-6.4 mm to pulverize the hydrogel and obtain pulverized gel particles. The cited patents also do not suggest drying the resulting pulverized gel particles to obtain the water-absorbent resin particles. As noted in the Action, Goldman et al. does not disclose internal-crosslinking agents in the claimed amounts or extruding a hydrogel through a perforated structure. Hatsuda '879 is cited for disclosing a crosslinking agent in amounts that overlap with the claimed amounts. Hatsuda '395 is cited as allegedly disclosing the claimed perforation diameter.

The Action refers to column 11, lines 51-55 of Hatsuda '395, as allegedly disclosing the claimed perforation diameter. The dimension D3 of Hatsuda '395 does not refer to the perforation diameter as indicated in the Action. As shown in Figure 4, the dimension D3 refers to a spacing between the rotary blades of the mixing device. As specifically disclosed in column 11, lines 51-55 of Hatsuda '395, the dimension D3 is the spacing between the respective surfaces 7c and 8a of the rotary blades 7 and 8. The distance or interval D3 between the surface 7c and surface 8a is not a diameter of a pore or opening for extruding the hydrogel. The spacing between the blade surfaces of Hatsuda '395 defines the space between the two spiral rotary

blades that rotate at different feed rates so that the hydrogel polymer is sheared. There is no suggestion in Hatsuda '395 of extruding the hydrogel polymer through pores having the claimed diameter.

In view of the deficiencies of Hatsuda '395, it would not have been obvious to one skilled in the art to extrude the hydrogel through a perforated structure having perforation diameters of 0.3-6.4 mm to pulverize the hydrogel and obtain pulverized gel particles as in claim 6.

Rejection of Claims 7 and 8

Claims 7 and 8 are rejected under 35 U.S.C. § 103(a) as being obvious over Goldman et al. in view of Hatsuda '879 and Hatsuda '395, and further in view of Irie et al. For the reasons discussed above, Irie et al. provides no suggestion to one skilled in the art to agglomerate the resulting particles and provides no reasonable expectation of success in obtaining the desired properties of the aqueous-liquid-absorbing agent. Furthermore, even if one were to agglomerate the particles of Goldman et al., the resulting process would not be the claimed invention and would not have the claimed properties. Accordingly, claims 7 and 8 are not obvious over the combination of the cited patents.

Rejection of Claims 9, 10 and 11

Claims 9, 10 and 11 are rejected under 35 U.S.C. § 103(a) as being obvious over Goldman et al. in view of Hatsuda '879, Hatsuda '395 and Azad et al. For the reasons discussed above, Azad et al. does not disclose or suggest a liquid-permeability-enhancing agent within the meaning of the claimed invention. The passage referred to in the Action discloses adhesively coating the superabsorbent polymer particle with a crosslinked surface of a polyamine. The crosslinked surface of the polymer particle of Azad et al. is not a liquid-permeability-enhancing

agent. Furthermore, the crosslinked surface disclosed in Azad et al. is clearly not a polyvalent metal compound, polycationic compound, or inorganic fine particle as recited in claim 11. Thus, it would not have been obvious to one skilled in the art to add a liquid-permeability-enhancing agent to the aqueous-liquid-absorbing agent based on the disclosure of Azad et al. Accordingly, claims 9, 10 and 11 are not obvious over the combination of cited patents.


Rejection of Claim 12

Claim 12 is rejected under 35 U.S.C. § 103(a) as being obvious over Goldman et al. in view of Hatsuda '879 and Hatsuda '395, and further in view of EP 1178059 to Dairoku et al. Dairoku et al. is cited for disclosing a monomer concentration within the claimed range.

Dairoku et al. is relevant to the extent that various monomer concentrations are disclosed. For the reasons discussed above, the primary references do not disclose or suggest a process of producing an aqueous-liquid-absorbing agent by extruding a hydrogel from a perforated structure having perforation diameters of 0.3-6.4 mm to pulverize the hydrogel. Dairoku et al. also does not disclose or suggest this feature. Therefore, Dairoku et al. either alone or in combination with Goldman et al., Hatsuda '879 and Hatsuda '395 do not render claim 12 obvious to one of ordinary skill in the art.

In view of these amendments and the above comments, reconsideration and allowance are requested.

Respectfully submitted,


Garrett V. Davis
Reg. No. 32,023

Roylance, Abrams, Berdo & Goodman, L.L.P.
1300 19th Street, N.W., Suite 600
Washington, D.C. 20036
(202) 659-9076

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